PARTNERS FOR THE FUTURE

MINISTRY OF ADVANCED EDUCATION, TRAINING AND TECHNOLOGY

MINISTRY PLAN

JULY, 1991

MINISTRY OF ADVANCED EDUCATION,
TRAINING AND TECHNOLOGY

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Appendix: Environmental Summary I

Information contained in this document was correct at time of printing.

OVERVIEW OF KEY MINISTRY DIRECTIONS

This document presents the vision, mission, programs and initiatives of the Ministry of Advanced Education, Training and Technology. It will clarify for the reader the role and function of the Ministry and provide direction to the partners (see page 5) comprising the system of post-secondary education, knowledge and skill development.

Based upon analysis of the environment in which the Ministry operates, its resources and programs, and its overall vision concerning the contribution of the system to the Province's future, the Ministry has established several major directions for the planning period of the next three to four years.

It should be made clear at the outset that this plan is concerned with new directions and emphases, more than with ongoing, established ones. The focus of the directions outlined below - and many of the initiatives detailed in the plan - is more toward the practical, economic application of post-secondary education and new knowledge. However, this does not mean that the significant role played by the system of post-secondary education in developing knowledgeable, community-spirited individuals and a harmonious society is in any way diminished. It is evident from the ongoing allocation of resources to the system that the latter role continues to be an important one.

An Emphasis on Synergy

Cooperation, coordination, partnerships, integration and articulation are recurring themes in this document. These strategies are based on the concept of synergy - the whole is greater than the sum of its parts. The Ministry will build synergy among its divisions and partners, both public and private, within the system.

Significant Expansion of the Public Post-Secondary Education System

A number of major new initiatives will, within the limits of funding, add substantially to the capacity of the public system over the next few years. These initiatives are being undertaken in response to enrollment pressures which are pushing British Columbia participation rates toward the national average.

Need for Further Expansion and Diversification

Both students and workers, as clients of the knowledge and skill development system, are becoming more aware of the need for education and training in order to achieve their individual potential. This has resulted in burgeoning growth and diversification in the demand for relevant, high quality programs and services. This demand will continue to grow in response to a number of factors: the knowledge requirements necessary to sustain competitive advantage; the shift to lifelong learning, with education and training occurring throughout all stages of life; and the need to expand the opportunities for all under-represented groups.

Service Excellence and Accountability

Governments at all levels need to ensure that publicly-funded programs and services meet clear and valid objectives, and that there is (and is perceived by the public to be) good value for public expenditures. The Ministry and its partners have a joint responsibility for accountability. Service excellence is a commitment to customers and clients that they will receive absolutely the best service we can provide - service which is focused on their needs and expectations.

An Expanded Effort in Knowledge Generation and Application

With the greater emphasis on a knowledge based economy, the Ministry seeks strategies to increase the overall level of research and innovation, build on the province's strengths, and develop technology which can be applied in industry for the benefit of the people of British Columbia.

These will be the major thrusts for the Ministry of Advanced Education, Training and Technology over the planning period. This document outlines specific goals, challenges and initiatives which are underway or planned in relation to these thrusts. The Ministry urges its partners throughout the system to develop plans and programs which contribute to the achievement of these major directions.

Organization of the Document

The first eight pages of this Ministry planning document set out broad corporate planning statements for the Ministry - its vision, mandate, mission, goals and values - as well as the key strategic issues it faces. The remainder describes the challenges to be addressed and the planned initiatives. The appendix provides more detail on environmental trends and their implications. Plans are also being developed within divisions of the Ministry. These divisional plans elaborate on targets and implementation for various Ministry initiatives.

INTRODUCTION

The Ministry of Advanced Education, Training and Technology has a broad mandate interwoven with the economic and social fabric of the Province. The Ministry provides leadership within a system of advanced education, knowledge and skill development which serves a large portion of adult British Columbians. How this system impacts the lives of British Columbians will play a key role in determining our quality of life in the future.

Strategic Issues

The system of post-secondary education, knowledge and skill development is operating in an environment that is changing more rapidly than ever before. Among the issues it needs to address are:

Declining Productivity Growth/Real Incomes

In the last 20 years, overall productivity in both B.C. and Canada as a whole has been increasing at a rate slower than is required to sustain international competitiveness and real income growth. This under-performance has been partially masked by short periods of relatively healthy resource prices and the boost to family incomes brought on by a substantial increase in female labour force participation.

Key Role of the Knowledge and Skill Base in Boosting Productivity Growth

There is a growing consensus, based on numerous studies and reviews, as well as research on the development process in countries such as Japan, Korea and Taiwan, that attention to the knowledge and skill base is crucial to creating productivity gains and ensuring competitiveness in the new global environment. There is an urgent need for effective human resource development and science and technology strategies, and for the linkage of these to the larger process of socioeconomic policy development.

Increasing Skill Requirements

Technological change and the forces that attend globalization are placing a premium on highly skilled workers - both from academic and technical backgrounds. The skill requirements for most existing jobs are also increasing.

Polarized Job Market

While a large portion of the new jobs will be high-skill, there will also be a polarization in the job market with significant numbers of low-skill, low-wage jobs for which short term, specific training will be required.

Shortages/Structural Unemployment

With the baby boom generation already in the work force and female labour force participation rates at levels where there is much less potential to increase, future growth in the labour supply will be lower than at any time in the last 20 years. On the demand side, technological change will be constantly shifting the skills required for new and existing jobs. As a result, it will be increasingly difficult to match skills demanded with those available in the workforce. This could lead to higher levels of unemployment and job vacancies.

Demand Pressures on the System

A combination of factors has placed very high student demand pressures on the British Columbia post-secondary system. These include demand pressures which are pushing B.C.'s participation rates up to the national average, demands stemming from B.C.'s unique position of experiencing slight gains in its 18-24 population (while other provinces are seeing declines), and the increasing pressures from older people returning to the post-secondary system for further study.

Resource Constraints/Accountability

Over the next few years, completion of a number of major new initiatives will bring increased funding to the system and help it meet some of the demand pressures. However, over the longer term, concerns over the national and provincial debt, and public resistance to taxes and government spending, will limit public funding increases. More emphasis than ever will be placed on prudent management of public resources. Clear, relevant, measurable objectives for public programs/services will help to ensure value for money and accountability. Any increases in the real level of public funding to the system will have to be soundly-based and well-argued.

Equity Considerations

Members of a number of groups - women, Natives, those with disabilities and visible minorities - have not shared equally in the opportunity and prosperity achieved by other British Columbians. In many cases, significant gaps exist in the education, labour force participation, and earnings of these groups compared to the rest of the population. With the dislocations and adjustments that will result from accelerated technological change in the future, these gaps could widen unless strong positive action is taken.

Changing Lifestyles/Time Pressures

Over the past decade, most people have experienced increased demands on their time. As a result, there are more pressures for advanced education and training services to be flexible and convenient. This has implications for the scheduling of classes, self-paced learning, distance learning, modularized and well-articulated programs, location of facilities, provision of day care services, student financial assistance, workplace training, etc.

These issues reflect significant challenges and opportunities for the Ministry and the system. To respond to this environment, the Ministry has focused its planning around three broad client-centred goals:

Building the **individual potential** of British Columbians

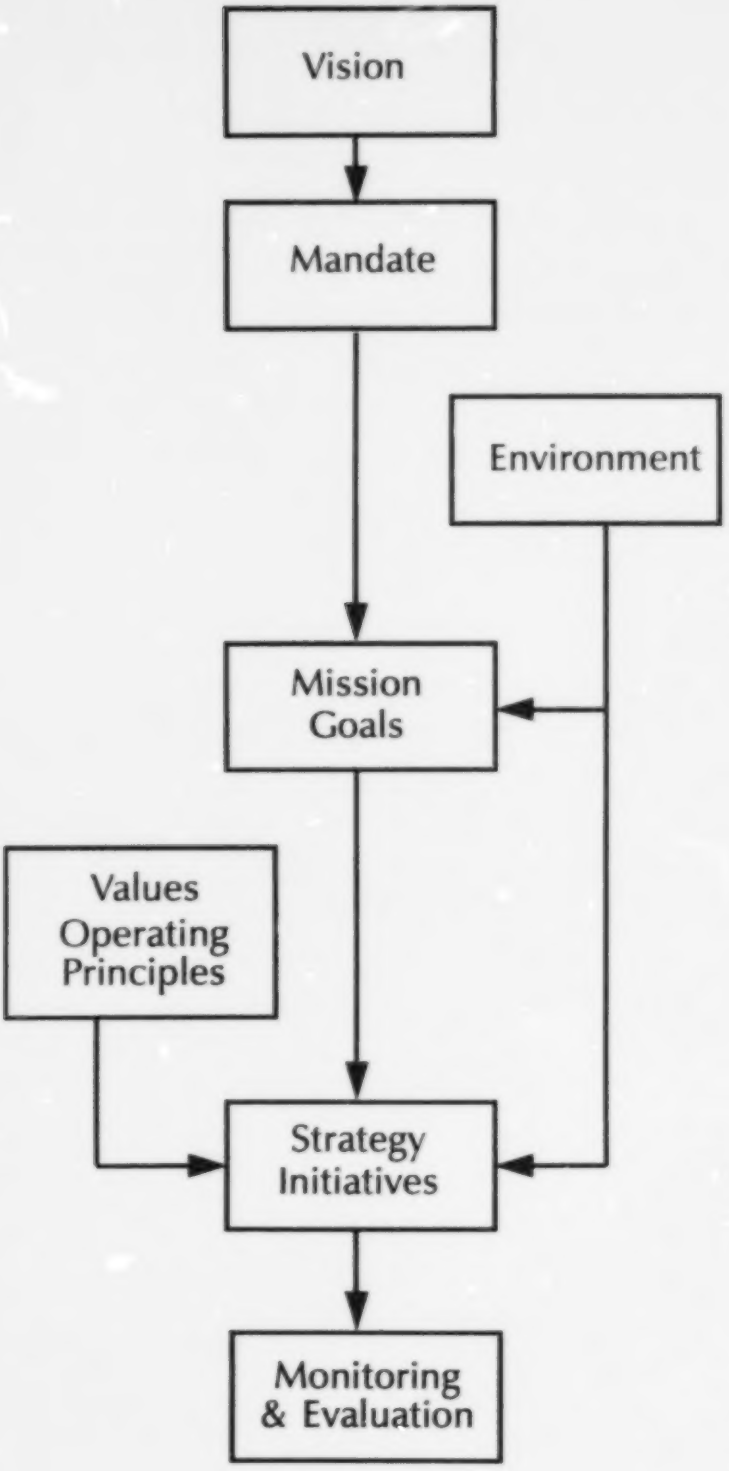
Developing the Province's **knowledge base**

Building a **system** of advanced education, knowledge and skills development which is **responsive** to change.

Planning Process

The above goals are central to the Ministry's planning process. The planning process results in the renewal of corporate planning statements - mandate, vision, mission, goals, values and operating principles, and produces a strategic plan for achieving the Ministry's goals. The diagram on the next page defines the steps and terms used.

The Planning Process



What is our vision for the Province?

In what areas, and with what authorities can we act?

What are the present and future conditions in the environment in which we are operating?

Why do we exist, and what goals should we pursue to realize our vision?

As we pursue our goals, what values & principles will we live by?

What general approach will we use to achieve our goals, and what specific actions will we take in the next three to four years?

Are we achieving the stated goals?

MINISTRY VISION

The Ministry structures its programs and services to achieve a vision of British Columbia which includes:

- **Economy** - A strong, globally competitive economy that offers its people one of the highest standards of living in the world
- **People** - Well-educated, healthy, productively employed people
- **Environment** - A clean, safe, sustainable physical environment
- **Opportunity** - A tolerant, diverse society where all individuals have the opportunity to achieve their potential

MANDATE

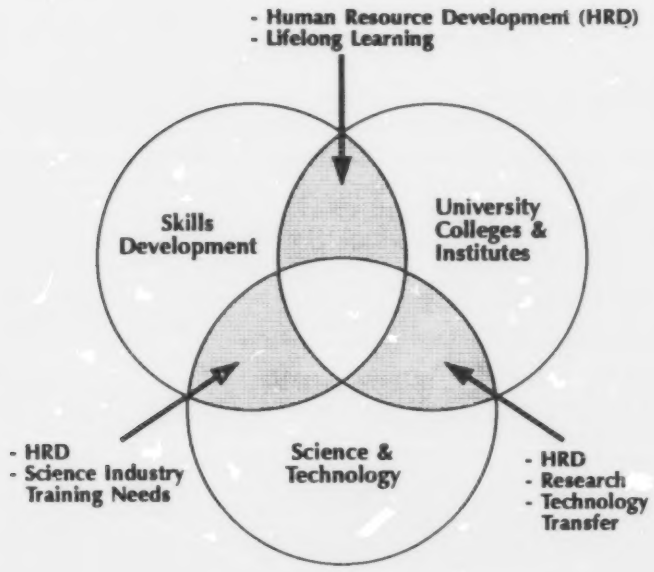
The Ministry's mandate is to ensure there is leadership towards a province-wide system of advanced education, skills development, labour market adjustment, science and technology comprising:

- Public post-secondary educational institutions
- Private training institutions
- Scientific and advanced technology organizations
- Business and labour
- Volunteer, community and professional associations

The Ministry's principal functions within the system are:

- Providing leadership
- Planning
- Coordinating and enabling
- Building awareness
- Funding/ accountability

THE MINISTRY'S THREE MANDATE AREAS



As the diagram above shows, the Ministry has three broad mandate areas which together make up the B.C. system of advanced education, knowledge and skills development. Each of the main operating divisions of the Ministry has primary responsibility for dealing with the partners in each of these mandate areas.

The **Universities, Colleges and Institutes Division** fulfills a planning, funding and coordination role for the public post-secondary education system of the Province. This system comprises the four universities, 15 colleges, four institutes and the Open Learning Agency.

The **Skills Development Division** provides provincial leadership to encourage labour market development and human resource planning. This is done in partnership with business, workers, training institutions, communities and other governments.

The **Science and Technology Division** has a mandate to provide leadership and funding support for the Province's Science and Technology Policy. It does this through building partnerships with groups in industry, education and other governments.

The chart also identifies a number of areas of overlap where there are many opportunities for coordination and synergy.

MINISTRY MISSION

The Mission of the Ministry of Advanced Education, Training and Technology is:

To promote the development of knowledge and skills to enable British Columbians to achieve their potential, and to provide leadership in anticipating and responding to the needs of a dynamic economy and society.

GOALS

To achieve this mission, the Ministry will focus on these major goals:

Individual Potential

Ensuring British Columbians have the knowledge and skills to perform valuable work and lead fulfilling lives.

Knowledge Base

Providing leadership in the development and adaptation of new knowledge to promote competitiveness, environmental integrity, and quality of life.

Responsive System

Providing leadership for an advanced education, training and research system that anticipates, leads and responds to the needs of a dynamic economy and society.

VALUES

The Ministry and its partners in the advanced education, knowledge and skills development system value:

- People
- Individual responsibility and choice
- Equity
- Excellence and innovation

OPERATING PRINCIPLES

Over the next three to four years, the Ministry will give priority to the following principles in developing its strategic plans:

- **Cooperation and partnerships** - The Ministry will seek new opportunities for pooling expertise and resources with its partners.
- **Accountability and cost effectiveness** - Programs supported by public funds will have demonstrated cost effectiveness and responsiveness to the needs of society.
- **Community-based service** - Community-based delivery will be encouraged.
- **Targeted initiatives** - Efforts will be made to focus programs on meeting specific needs.

INITIATIVES AND PROGRAMS SUPPORTING MINISTRY GOALS

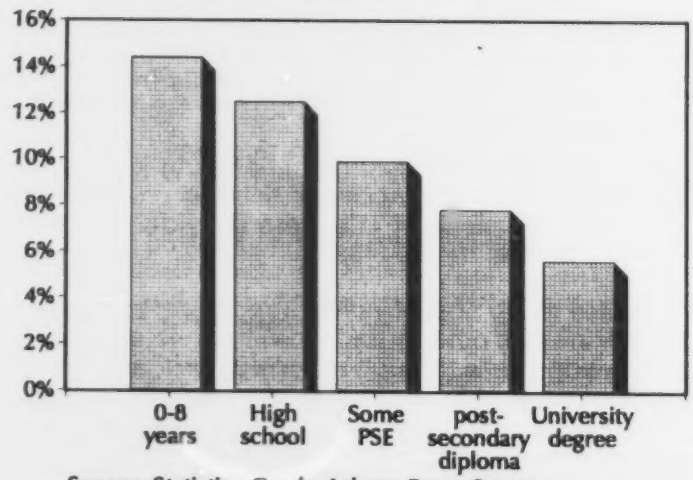
Over the next three to four years, both the ongoing programs and new initiatives of the Ministry are structured to serve the goals identified on page 7. A brief description of the programs and initiatives follows, with reference to challenges facing the Ministry and probable future Ministry emphases. System partners are invited to work with the Ministry to develop programs to complement these goals and meet these challenges.

GOAL: INDIVIDUAL POTENTIAL

Ensuring British Columbians have the knowledge and skills to perform valuable work and lead fulfilling lives.

Access to and successful achievement in higher education are critical in attaining one element of individual potential - employability. For each year of education past high school, unemployment rates decrease by about 1.3%. In addition, median annual earnings increase by about $3000, while net fiscal contribution - the difference between taxes paid and benefits received - rises by an average of $900.

Unemployment Rates by Educational Attainment



Source: Statistics Canda, Labour Force Survey

In the increasingly competitive, technological environment of the future, it will be crucial for British Columbians to have opportunities to increase their knowledge and skills on a continuous basis. Further, special efforts must be made to close the knowledge and skills gap between disadvantaged groups and the population in general.

As a result of these considerations, the Ministry will address the following challenges in order to achieve the goal of individual potential:

- *Maintain and build upon a comprehensive system of advanced education and skills training, so that:*
  - *i) British Columbia's post-secondary participation rates rise to the national average, and*
  - *ii) there are balanced opportunities for students to pursue career, technical and vocational programs which respond to emerging skill requirements.*

- *Develop a secure and adequate supply of scientists, engineers, technology managers and entrepreneurs to support achievement of the Province's Science and Technology Policy.*

- *Build stakeholder partnerships to increase individual, community and business responsibility for training, resulting in increased investments in workplace-based training.*

- *Make significant progress in reducing the gaps in post-secondary and labour force participation, skills and earnings for all under-represented groups.*

The following programs and initiatives will address these challenges.

Challenge: Comprehensive System

"Access for All"

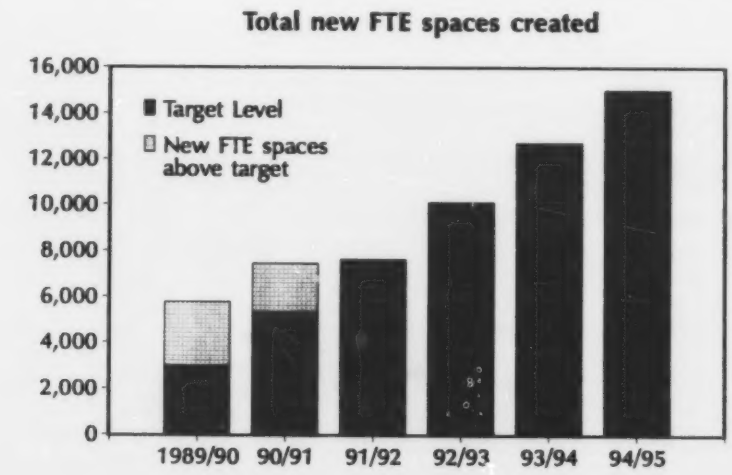
"Access for All" is the key initiative in building the Province's system of post-secondary education to support individual potential. This multi-year expansion of the system was announced in 1989 following extensive consultation throughout British Columbia. A total of $480 million in new operating funds and $210 million in new capital funds across six fiscal years (to 1994-95) was committed to expand capacity and to initiate degree programs outside southwestern B.C.

The target is to increase the system capacity in academic programs by 15,000 FTEs by 1994–95. The Access initiative is proceeding according to plan. **An additional 2,600 academic FTEs were provided in 1990–91, with a similar number planned in 1991–92.**

Access contributes to the goal of individual potential and provides important support for the Ministry's other goals. The result will be significant growth in the Province's knowledge base through expansion of academic programs, particularly at the graduate level. Further, Access will provide many of the resources and facilities the system will need to be responsive in the future.

Creating the actual facilities to make the expansion under Access possible, and meeting the growing demand for non-academic programs will require major capital commitments. The Ministry's budget for 1991-92 reflects commitments to planning and construction at a number of locations in the Province.

Access



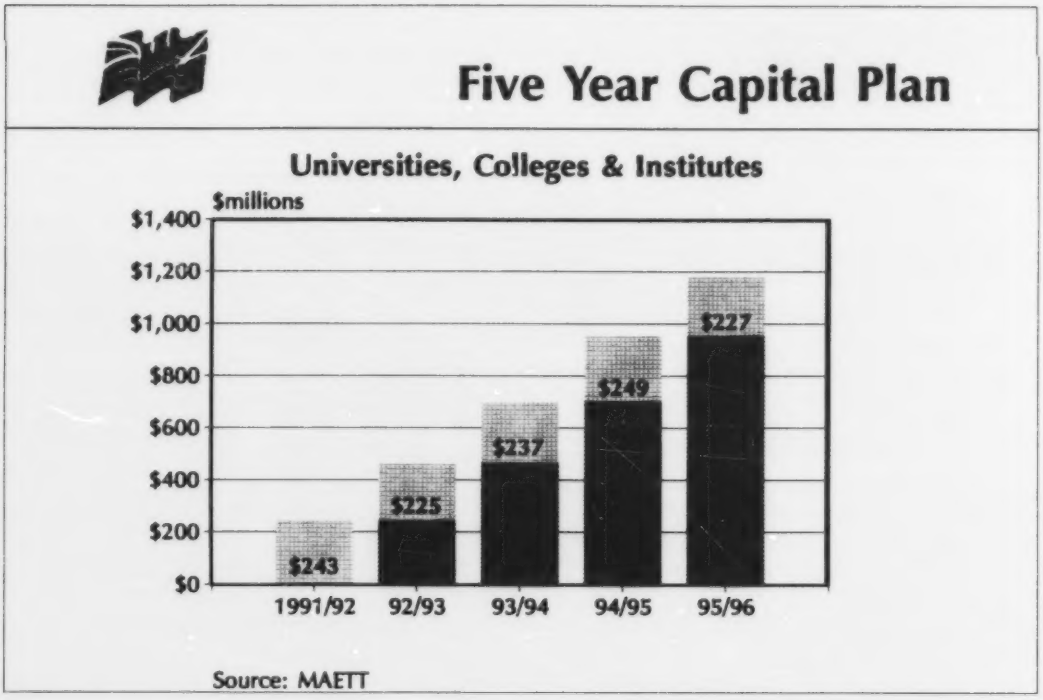
Source: MAETT

The University of Northern British Columbia has acquired a site and begun the planning for its campus. The three university-colleges at Nanaimo, Kamloops and Kelowna will call tenders and commence construction of $66.7 million worth of projects. These university-college projects will help meet local needs and ease the demand for student places at the three existing universities.

The proposed allocation of other capital projects will serve all regions of the province both economically and educationally.

In the past two years, post-secondary approvals for construction of buildings were $99 million and $167 million respectively, with an additional approval of $78 million for equipment and renovations over the two years. **The current budget allocation will maintain the momentum of the government's commitment to facilities expansion.**

The Ministry acknowledges that growing demand for trained workers also requires that access to career-related training of one to two years duration must be enhanced.



Challenge: Technological Workforce

People - highly trained and creative - make innovation happen. But they cannot participate fully in a technologically-advanced future without awareness of and training in science and technology. There are two strategies the Ministry is pursuing which will help develop individual potential and expand the knowledge base. One involves updating and advancing the skills of existing scientific workers, the other raising awareness of science and technology, particularly among children.

Upgrading Skills of Researchers

At higher education levels, the Ministry supports partnerships between industry and universities aimed at encouraging post-secondary and post-graduate study and research. Research and development funding through **Technology B.C.** offers opportunities to acquire specialized skills. This program also makes an important contribution to the goal of developing the knowledge base.

In addition, the Ministry, in partnership with industry and education, actively encourages retraining those already in the workforce through such programs as **Science and Technology Awards For Returning Students.**

Science and Technology Culture

The Ministry is working to increase public awareness about the benefits of science and technology and opportunities in future job creation, career development and product innovation. To accomplish this, the Ministry is **planning for regional science and technology councils and a new science and technology awareness grant program.** The Ministry will continue to support existing public awareness initiatives, such as, Science and Technology Week and the Science Fairs program.

Science awareness and education must begin at an early age. The curiosity and natural interest in science of young children must be sustained. The **Scientists in the Schools Program** and other efforts of the Ministry are working toward this end. **Through the Ministry of Education, these programs will be strengthened and expanded to foster greater interest in science-related courses at all educational levels.**

Challenge: Responsibility for Training

Training, Skills Development and Adjustment

Ongoing training, retraining, skills development and labour market adjustment measures are vital for providing individuals with opportunities to achieve their potential on a continuing basis, and maintaining a skilled, competitive workforce. **Initiatives to identify skill shortages and training needs, facilitate workforce training and adaptability, and foster a training culture in the Province are in place and will be expanded.** Training models from business and industry which exemplify innovation and excellence will be identified and considered.

Challenge: Under-represented Groups

Women

Much progress has been made in increasing opportunities and removing barriers for women in a number of areas where they are under-represented. Women now comprise 55% of all post-secondary students, up from 39% in 1971. Despite this improvement, women are still significantly under-represented in science, engineering, mathematics and technologies. A number of Ministry and institutional **programs are aimed at attracting more women to these disciplines.**

As the participation of women in staff positions and in programs of study increases, there is a growing demand for day-care resources on campus. Requests for on campus day care facilities have been made in some of the three year plans submitted by institutions, and these are being given careful consideration.

Employment equity initiatives and Ministry strategies, such as the increased consideration being given to gender balance in board appointments are being pursued to encourage participation of under-represented groups on faculties, boards and senates.

Women also have a lower rate of participation in the labour force than men, although dramatic progress has been made over the past 25 years, with the participation rate rising to 57.9% from 38%. However, the women's participation rate still lags 18 percentage points below men. Various labour market, education and support strategies are helping reduce this gap.

Native Education

Natives as a group have not benefited to the same extent as the overall population from economic and social development within the Province. To help Natives pursue their potential, the Ministry initiated a Provincial Advisory Committee on Post-Secondary Education for Native Learners and developed a strategic plan based on the Committee's recommendations.

In 1991–92, the Ministry plans to provide formula–based financial support to selected native education institutions affiliated with a public college (Nicola Valley Institute of Technology, Native Education Centre in Vancouver), and to enhance support services for those colleges and institutes which serve a large number of Native students. Funds will also be available for **improving access through distance education and adding relevant new programming.** The Ministry plans to include native representation in major consultative committees in the future.

Disability Policy and Initiatives

Persons with disabilities face a number of barriers. The Ministry, through its leadership and coordination, is focusing on minimizing these barriers and helping those with disabilities become more independent. The primary objective of these initiatives is to help those with disabilities realize their potential by improving their access to education and training.

There are a number of initiatives aimed at providing training and community support for those with disabilities. These include: **strengthening of community–based partnerships; increased support for Vocational Rehabilitation Services in 1991/92** (cost-shared 50/50 with the Federal Government); **coordination of cross–government policy** through the Assistant Deputy Ministers' Steering Committee on Disability Issues; **participation in Independence '92,** an international congress and exposition on disability related issues, chaired by Rick Hansen and held in Vancouver in April, 1992; and **development of policies and initiatives focusing on employment equity and supported employment.**

Most post-secondary institutions now have Special Education staff whose role is to assist students with disabilities. **All colleges have Special Education programs for students who cannot access regular programs. The physical accessibility of the institutions is also improving as a result of targeted grants provided in the last two years. A further increase has been budgeted for 1991–92**. In 1989-90, the Ministry conducted a comprehensive review of its programs and services for students with disabilities. Based on extensive input from stakeholders, a report will be released in the summer of 1991 with a number of recommendations, some of which are already being implemented.

Literacy

For educational and training programs to be beneficial to those who need them most, there must be significant progress in overcoming illiteracy. Attention has been focused on the degree of illiteracy in Canada through events surrounding International Literacy Year in 1990 and by publication of results of major literacy surveys by Southam and, more recently, Statistics Canada. Although British Columbia's literacy rate is the highest among provinces, Canada ranks very low in relation to other developed nations in terms of literacy.

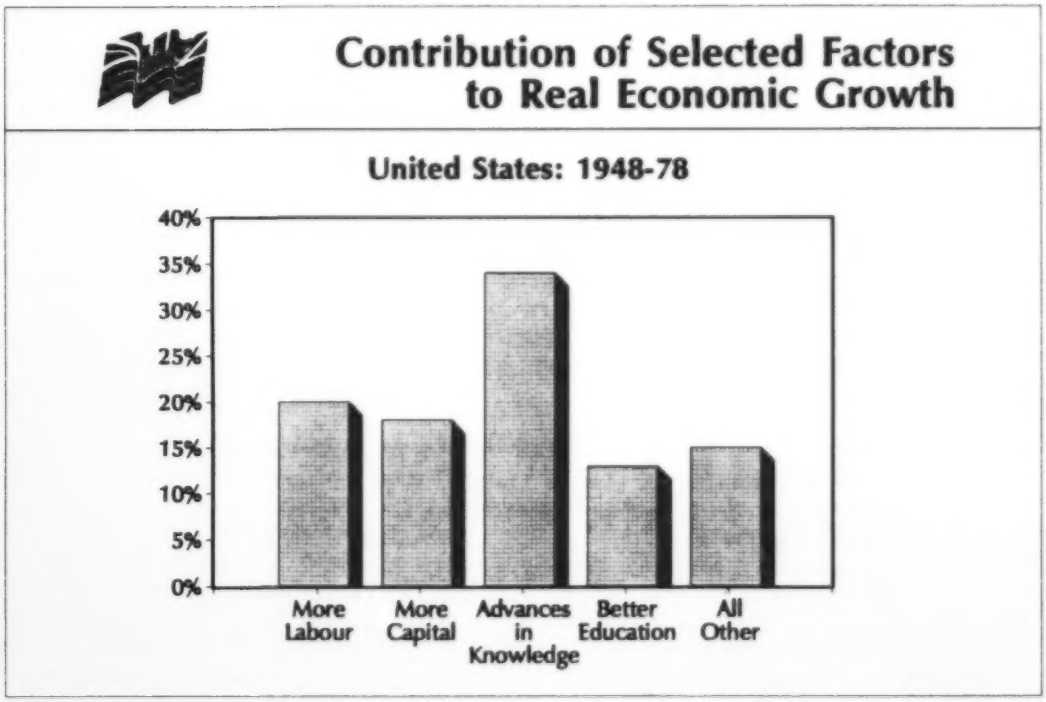
To address British Columbia's literacy concerns, a Provincial Literacy Advisory Committee was formed, and it submitted its report with recommendations to the Ministry in December 1989. The Ministry supports the major recommendations, has developed the following plans and has taken the following actions:

- **Effective April 1, 1991, literacy programs became tuition-free in the Province.**
- **Some increase in funding for staff in literacy programs is anticipated in 1992-93.**
- **The Ministry will seek cost-sharing arrangements with the Secretary of State of Canada for the implementation of other literacy development projects.**

GOAL: KNOWLEDGE BASE

Providing leadership in the development and adaptation of new knowledge to promote competitiveness, environmental integrity, and quality of life.

Science-based innovation is the key to British Columbia's ability to compete in global markets and ultimately to sustain real economic growth (see chart below). The source of this innovation is research and development of international calibre focused on areas of competitive advantage. B.C.'s Science and Technology Policy identifies the Province's strengths - natural resources and communications for instance - as its best competitive opportunities. By further developing an already strong expertise in these areas, B.C. can generate products for export that will be in demand around the world.



The Ministry is responsible for promoting research and development. Working with both non-government and government agencies, the Ministry leads the Province's effort through direct funding and coordinating and encouraging R&D activity. **The Ministry's objective is for research and development in B.C. to have increased by 50 percent by 1995.** Ministry initiatives to support the Knowledge Base goal will help meet the following challenges:

- *Provide leadership in raising B.C.'s research and development expenditures as a proportion of GDP towards the 2.5% target of the Halifax Declaration.*
- *Attract key science and technology facilities which will be building blocks for later development.*
- *Provide support for at least one new initiative in an emerging area such as alternative fuels, advanced industrial materials, biotechnology, or information technology.*

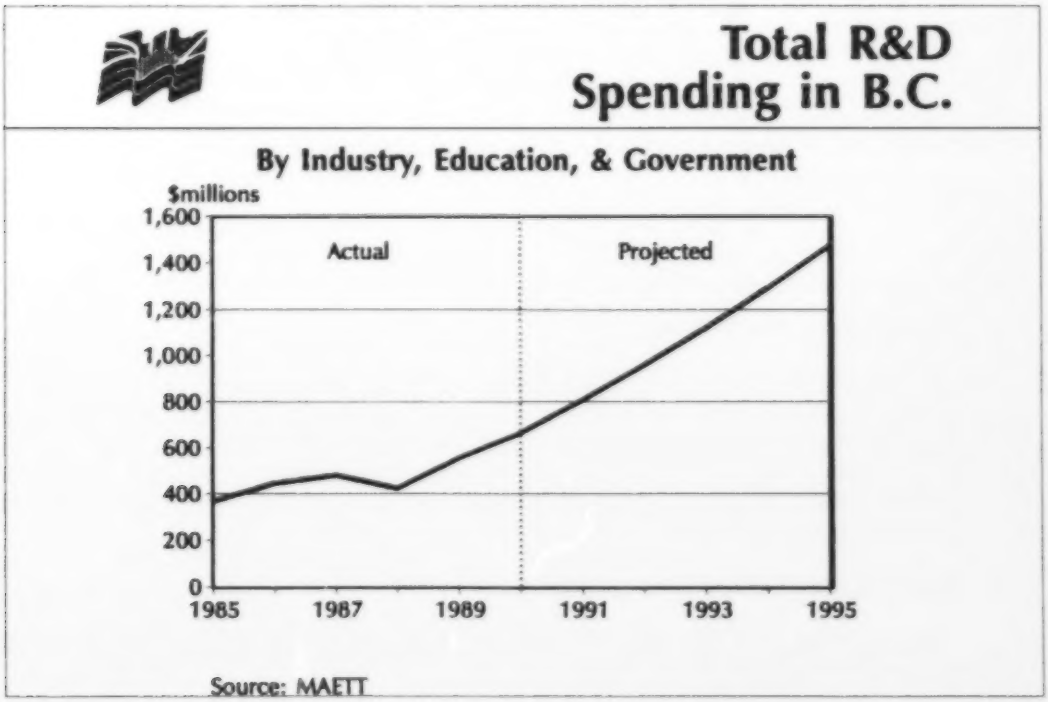
Challenge: Increasing Overall Level of R&D

Science and Technology Fund

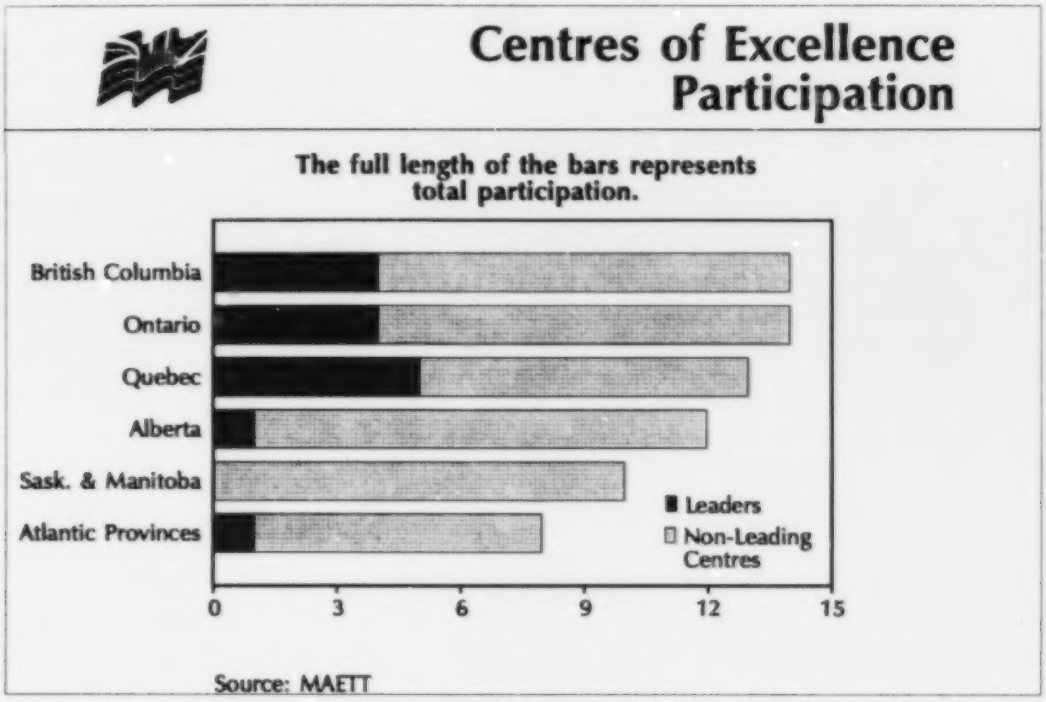
In addition to providing the financial base for a science and technology infrastructure, science and technology- focused human resource development and public awareness, the **Science and Technology Fund** will provide new funds for research and development. Through the Fund, the Ministry will increase government spending on science and technology by over 300 percent over the next five years.

Research at Post-Secondary Institutions

The Province's universities and colleges will also play a significant role. Working through the Ministry's Universities, Colleges and Institutes Division, the Province's post-secondary institutions will continue to promote and support increased levels of research and development through externally funded research grants and internally initiated research activities. A significant growth in institution based research is anticipated with the planned addition of **more than 1800 new graduate level spaces under the Access program**.



Research and development levels in the Province will also be increased over the coming years by the Government's continued support of the **Networks of Centres of Excellence** program. As long as resources are available, the Province will continue to voluntarily provide additional financial support to the 14 networks in which British Columbia is represented.



Technology Assistance

The Ministry's Technology Assistance Program, delivered by B.C. Research, enables small firms to undertake research they would not otherwise be able to because of the high cost of specialized facilities and personnel. The Technology Assistance Program - Part Two, designed to provide R&D capabilities in areas outside Vancouver and through organizations other than B.C. Research, has recently been initiated.

Developing Skilled Researchers

Through **Technology B.C.**, the Ministry will continue to support development of scientific expertise in key areas.

Challenge: Attracting Key Facilities

Herzberg Institute of Astrophysics

As a part of a proposal to the National Research Council to move the Herzberg Institute of Astrophysics to Victoria by 1993, the Ministry has offered to build a $20,000,000 facility to house the Institute at the University of Victoria. **This move will establish British Columbia as a major international center for astrophysical research**.

KAON

The Ministry is fully supportive of the Ministry of Education in its effort to gain commitments from other governments for the construction of the KAON factory at the Tri-University Meson Facility (TRIUMF). Provincial expenditures in support of this initiative will be drawn from the Science and Technology Fund. **The $600 million plus KAON project will make the TRIUMF cyclotron at UBC the premier facility for high intensity subatomic research**.

Challenge: Targeted Initiatives

The Ministry is supporting development of a number of initiatives consistent with its strategy of achieving competitive advantage by building on strengths. These include:

Sector Pioneering

In partnership with four other ministries, the Ministry is working to attract firms which can benefit from financing available through changes to the Patent Act. New initiatives, like the **Pharmical Project** already underway, will support the growth of the rapidly developing pharmaceuticals industry. 1991 will see the establishment of the **Agency for Hydrogen Systems**, which will coordinate, catalyze and help the province develop hydrogen as a commercially viable energy source. The development of the **Media and Graphics Interdisciplinary Centre (MAGIC)** at UBC will make B.C. a world leader in the field of computer graphics and animation technology and stimulate the already healthy software industry in the Province. The Ministry is exploring targeted initiatives in forestry, aquaculture and advanced materials.

Subsea Engineering

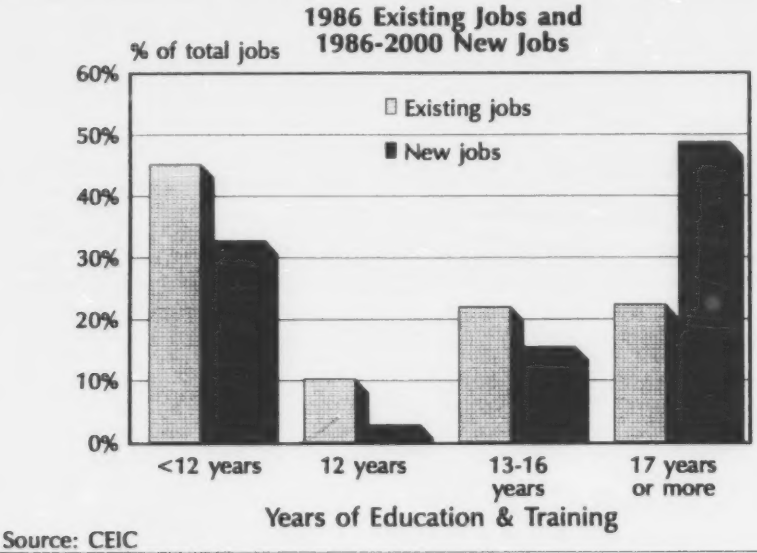
The SPIRIT Subsea System Corporation was founded to maintain Canada's lead in subsea engineering technology. This industry initiative includes the three universities and the provincial government as partners. Led by the Advanced Systems Institute, the R&D consortium will develop a remotely controlled underwater work vehicle.

GOAL: RESPONSIVE SYSTEM

Providing leadership for an advanced education, training and research system that anticipates, leads and responds to the needs of a dynamic economy and society.

Research on the competitive advantage of nations by Michael Porter of the Harvard School of Business suggests that structures which help systems respond to future change are even more important than the activities and outputs of those systems. Thus "getting it right" in terms of the configuration and outputs of the advanced education, knowledge and skill development system is not enough, although this is obviously important. What is even more critical is developing a system that can both respond to change and anticipate and prepare for change. The graph below shows the magnitude of change facing the system with respect to the education and training required for future jobs.

Changing Skill Requirements



Source: CEIC

There are a number of challenges facing the Ministry as it works with its partners to develop a responsive system:

- *Ensure the system of post-secondary education in the Province is positioned to meet the growing and diverse demands of the next century. In the shorter term, ensure the system is able to respond both to employer demands for higher and changing skills and to increasing demands in particular regions of the Province.*
- *Establish sound and productive linkages with the private sector and have the necessary public funding and support available to encourage educational, training and research partnerships.*
- *Build awareness of the need for increased investment in training by employers, employees and governments.*
- *Ensure there is a full continuum of human resource development programs and mechanisms - from those helping prevent such labour market imbalances as unemployment and skill shortages, to others providing adjustment assistance when imbalances occur.*

Challenge: Post-Secondary System Evolution and Responsiveness

The B.C. Human Resource Development Project

As B.C. moves into the next century, the human resource development system will face dramatic growth in demand, as well as shifts in the mix of programs required. The Province will need to meet these challenges without substantial increases in real funding levels. It is critical that the response to these changes reflect a thoughtful, long-term, system-wide perspective which is based on the collective wisdom and commitment of all stakeholders. The **B.C. Human Resource Development System Project will result in a proposed framework for development of B.C.'s system over the next two or three decades.** The direction in which the system evolves as a result of this project will also contribute to the realization of the goals of individual potential and knowledge base in the future.

Under the direction of a steering committee, chaired by the Deputy Minister and comprising representatives of major stakeholders, a project director is managing a series of workshops, seminars and research projects. These activities will be the foundation for a "green paper" outlining the proposed framework.

Shorter Term Initiatives

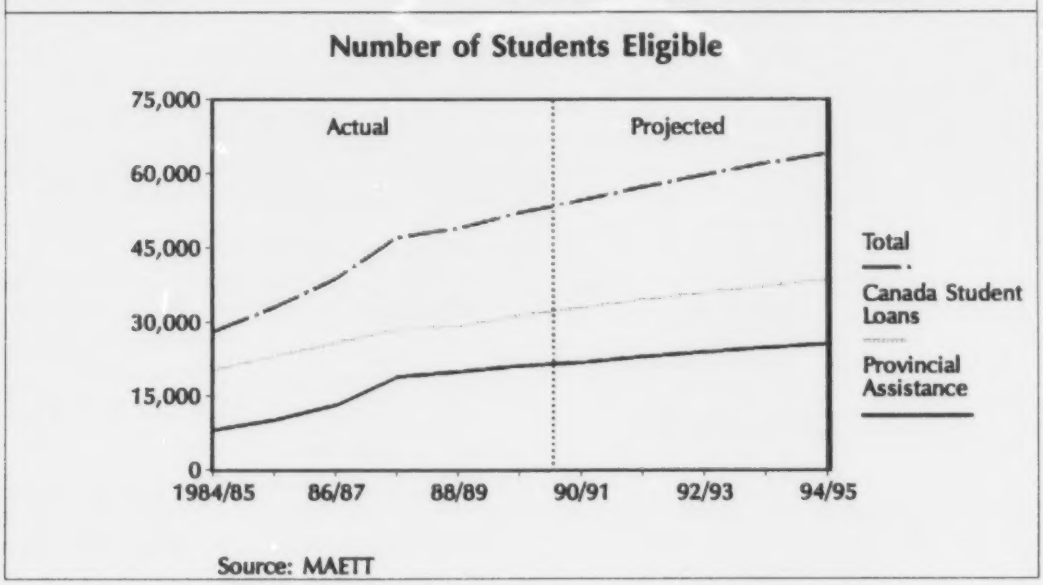
The Ministry is pursuing a number of initiatives to meet the emerging needs of the post-secondary system over the short term. The largest of these is Access (described in detail under Individual Potential on page 10). Other initiatives are described below:

The **Fraser Valley Access Committee** was established in 1989 to investigate the influence of population growth and higher participation rates on the demand for college and university programs, including degree completion, in the Fraser Valley region. A broadly-based consultation group was convened to seek public reaction to the Access Committee's report. Planning is proceeding in consultation with institutions and citizen groups in the Fraser Valley.

Goals in the **international education** area include: promoting trade and economic development; educating British Columbians to understand and compete more effectively in the Asia Pacific region; and aiding delivery of international education activities in B.C. To achieve these goals, the International Education Branch undertakes market research, conducts outgoing missions, receives incoming missions, supports curriculum development, provides awards and internships, and supports overseas project development.

The Ministry is committed to improving the quality of service to residents requiring **Student Financial Assistance** to attend a post-secondary institution. A computerized Student Aid System, used to administer the program, is being rewritten to meet programmatic and audit requirements. Once the new system is in place, **the assessments of student applications will be centralized to improve service to students. The result will be a faster turnaround in the production and dissemination of loan documents.**

B.C. Student Financial Assistance



Source: MAETT

Institutional Three–Year Planning Cycle

As part of a three-year planning cycle, institutions and associations comprising the British Columbia post-secondary system are asked to report to the Ministry on their strategic planning processes, indicating any anticipated changes in major institutional direction. These planning reports are intended to provide a context for annual Ministry allocations of capital and operating funding and program approvals. By the end of 1991-92, planning reports will have been received from all post-secondary institutions and letters of understanding signed by each CEO and the Deputy Minister.

Challenge: Partnerships with the Private Sector

Science and Technology Fund

The Science and Technology Fund will ensure that resources are available to encourage and support educational, training and research partnerships with the private sector. Existing partnerships will be reinforced. New research partnerships in the enabling technologies - advanced industrial materials, biotechnology and information technology will be pursued. The Fund will also support programs targeted at private sector involvement in the training and education of scientists, engineers and technicians.

Other Science and Technology Initiatives

Through the Ministry's support, the Science Council of B.C.'s **SPARK (Strategic Planning for Applied Research and Knowledge)** process identifies and promotes economic development opportunities for B.C. arising from creative applications of science and technology. **SPARK** committees, made up of representatives from industry, the education community and government, were established to develop strategic plans for the application and development of science and technology in all of the Province's economic sectors. At least one more sector committee will be established in 1991. Implementation of recommendations in six sectors will be underway by 1992.

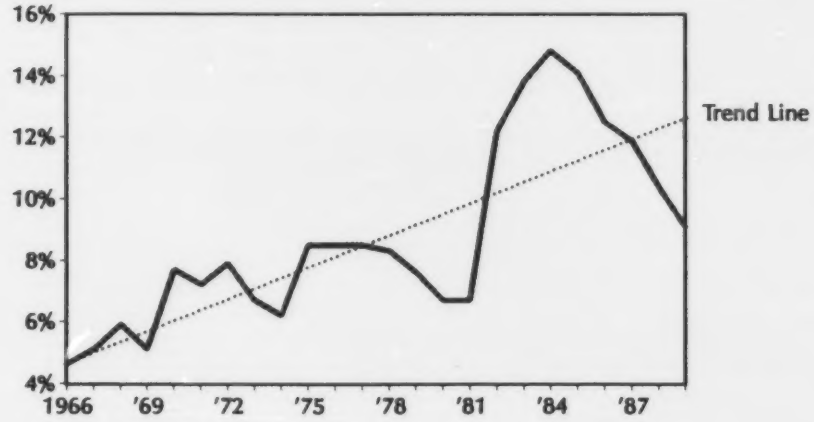
PACST (the Premier's Advisory Council on Science and Technology), with the support of the Ministry, **will continue to provide vital policy direction enabling the science and technology community to take advantage of strategic opportunities.**

Employment and Training Initiatives

Concern about labour market imbalances - in particular, the rise in structural unemployment with each business cycle of the past 25 years (see graph) - was a major reason for establishing the **Task Force on Employment and Training**. Following the report of the Task Force in the fall of 1991, there will be a period of review, analysis and possible implementation of its recommendations. These will focus on equity, information and counselling, training, mobility, coordination, data gathering, research and evaluation. **The Task Force has also recommended the establishment of an Employment and Training Council to encourage cooperation and coordination among parties active in the labour market and to monitor, analyze and publish recommendations on relevant labour market matters.**

Unemployment Rates

British Columbia: 1966-1989



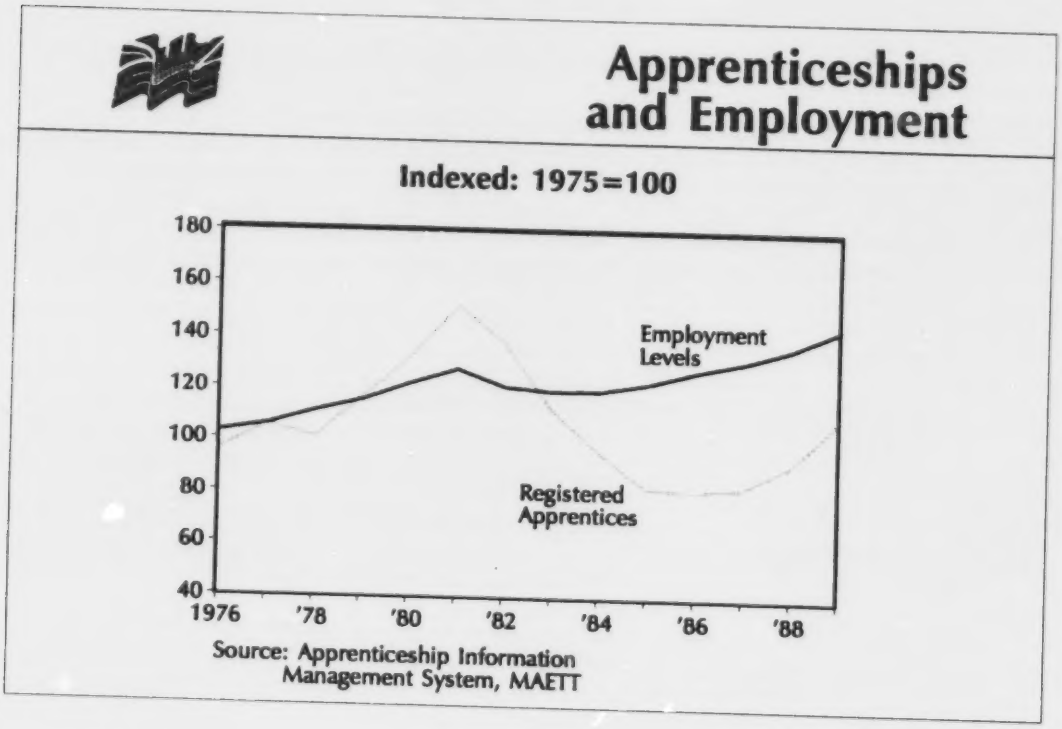
Source: Labour Force Survey, Statistics Canada

The Ministry is reviewing the structure and mandate of the recently established Canadian Labour Force Development Board, particularly with respect to its linkages to existing and proposed provincial structures (i.e. Provincial Apprenticeship Board, and the Employment and Training Council recommended by the Task Force on Employment and Training).

Challenge: Higher Levels of Private Training

Apprenticeship Training System

Training and ongoing skill development are key to a competitive British Columbia labour force. The Ministry recognizes apprenticeship training as a valuable method of on-the-job skill development and **in 1991–92, the Ministry will be implementing various initiatives to improve the overall effectiveness of the apprenticeship training system.**



Open College

Rather than offering the traditional community college program mix, Open College is focusing on self-funded workplace training initiatives. **Open College, often in partnership with other institutions, offers industry specific programs to retrain employees and hone their skills.** Programs will be custom-tailored to employer and employee needs.

Private Post-Secondary Education Commission

To further strengthen the private post-secondary education system, increase protection for private education consumers, and enhance the credibility of private institutions overseas (particularly in the Pacific Rim), the Government has established a **Private Post-Secondary Education Commission** to oversee the **mandatory registration and voluntary accreditation of private post-secondary education institutions.** The private post-secondary education system will play a significant role in career training to supplement the training provided by public institutions.

Human Resource Development in Science and Technology

The Ministry, in partnership with industry and institutions, actively encourages employer involvement in training through a number of programs. For example, the **Industrial Post-Doctoral Fellowships** and the **Science and Technology Awards for Returning Students** help the Ministry maintain high levels of expertise in industry. New initiatives aimed at increasing industry's participation in human resource development are also being explored.

Challenge: Full Continuum of HRD Initiatives

Canada/British Columbia Agreement on Labour Force Development

This Ministry and Employment and Immigration Canada are currently in the process of negotiating a **Canada/British Columbia Agreement on Labour Force Development**. This Agreement replaces the recently expired Canada/British Columbia Agreement on Training. It will significantly expand upon the Training Agreement to include a broader range of labour force development and adjustment issues and initiatives. It is also expected to more clearly define the roles and responsibilities of both jurisdictions, the private sector and individuals. **It is anticipated the Agreement will be signed off by the end of July, 1991.**

Labour Market Information and Skill Shortages

Concerns over Shortages of Qualified Labour

Source: Canadian Federation Independent Business

Enhancements to the **Labour Market Information System** have been in place since November 1990. These include reviewing occupational demand forecasting methodology and results and developing a framework to identify and characterize emerging occupational skill shortages. This and other relevant and timely labour market information on the changing mix and growth of occupations in B.C. appear in the recently-initiated quarterly **Labour Market Newsletter**.

The **Student Outcomes Survey** project, under development in 1991-92 , involves better matching of student outcomes data with labour market results, in an effort to improve program assessment and planning by the education and training system.

Labour Market Adjustment Programs and Services

The changes in the labour market today require strong adjustment measures. In 1990 the Government announced that it had entered into a **Program for Older Worker Adjustment (POWA) Agreement**, a Federal/Provincial agreement which provides **income support to older workers (aged 55–64) who have lost their jobs as a result of a major, permanent lay–off,** exhausted their Unemployment Insurance entitlement, and have few prospects for re-employment.

The **Industrial Adjustment Services Program (IAS)** provides for the establishment of a management/labour committee to develop, implement and evaluate private adjustment measures. These measures should help meet human resource requirements and solve problems that change can bring to the workplace.

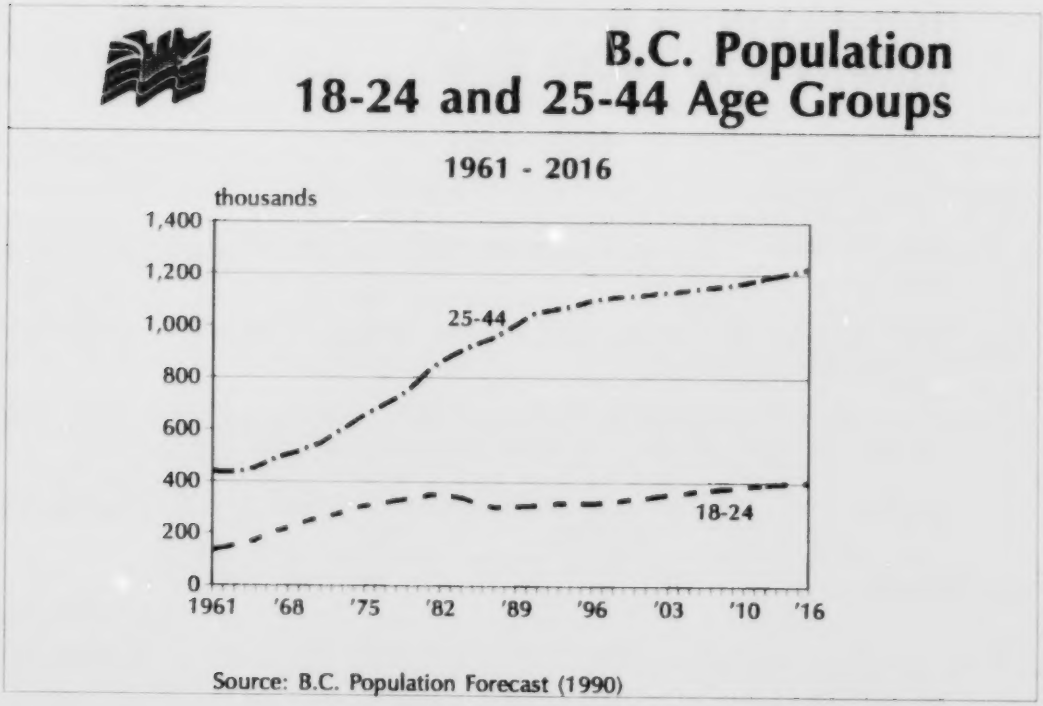
The **Training Investment Program (TIP)** allows Ministry staff to provide technical advice and assistance during the development of training plans. This will mean a reduction in the financial costs involved in the development process.

APPENDIX: ENVIRONMENTAL SUMMARY

Demography

Trend

With the aging of the Baby Boom generation, there will be a relatively stable population in the 18-24 year age group for the next six to seven years, followed by continued increases, reflecting the Baby Boom Echo. Growth in the 25-44 group has begun to slow and will continue to flatten out over the projection period.



Implications

- Fewer new labour force entrants than in the past. Greater reliance on groups under-represented in the workforce - women, Natives, persons with disabilities, visible minorities. This will create pressures for programs and services to encourage participation of these groups - child care provisions, flexible scheduling of work and courses, Native education, literacy, vocational rehabilitation, retraining and adjustment programs for older workers, English as a second language.

- Enrollment pressures on post-secondary institutions will result more from increasing participation rates than from a larger population base. The slower growth in the 18-24 population during the next few years will not alleviate enrollment pressures, because of an increase in enrollments of older students.

- The clientele at institutions will be older, both as a result of the trend to lifelong learning, and the general aging of the population. This will create pressures for flexibility and adaptability in educational services.

Technology

Trend

Technology is changing more rapidly than ever before. New products and processes are being developed, new technologies applied to existing tasks, and existing products becoming obsolete at an accelerating rate. Rapid increases in the knowledge base and the communication revolution are leading to globalization and intense economic competition.

Implications

- Rapid changes in the mix of skills required; new jobs generally require higher skill levels.

- Need to invest significantly more in research and development in order to remain competitive.

- Given the rapid pace of change, it is crucial for both individuals and the system to be receptive and adaptable to technological change.

- New technology is becoming available and cost effective in the expansion of learning opportunities for adults.

Globalization

Trend

Product and process standardization, transportation efficiencies and the reduction of tariff barriers have created a global market for more and more products. There is now less importance attached to natural advantages and a greater emphasis on developed advantages - with perhaps the most important one being human resource development.

Implications

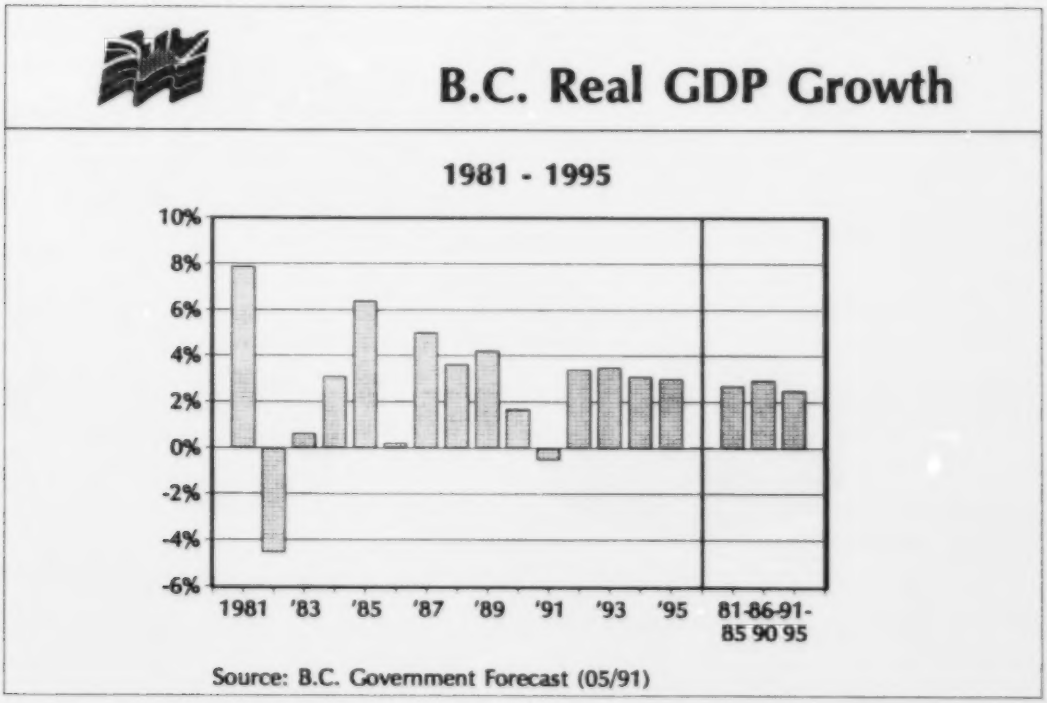
- Continual preoccupation with the competitiveness of our human resources and the capability of our education and training system to provide workers with the skills and adaptability necessary for the province to compete.

- With greater interdependence and interaction, there is a need for a more international focus in research and technological applications, marketing and economic development.

Economy

Trend

There are now signs that the recession which began in the rest of Canada in mid-1990 and led to a less severe slowdown in B.C., is beginning to abate. However, over the longer term, there are underlying concerns regarding B.C.'s competitiveness and over-reliance on commodity exports. As well, fiscal restraints confine governments' (at all levels) room to address both long-term structural, and short term cyclical, concerns.



Implications

- Improvements in the Province's human resource and knowledge base are crucial to enhancing competitiveness over the longer term.
- Given fiscal restraint, there will be considerable competition for funding from other expenditure areas. Importance of effective allocation of resources, and showing there is good value for public monies.

Labour Market

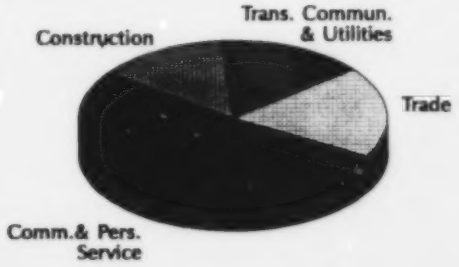
Trend

Demographic and technological factors will combine to create pressures on labour markets - rapid change with growth concentrated in high and low-skilled jobs, along with slower growth in overall labour supply. On top of this longer-term trend will be short term concerns of cyclical unemployment resulting from the economic slowdown.

With the acceleration of technological change and globalization, there is an increasingly important link between skills development and industrial development strategies.

Job Gains and Losses

British Columbia: 1989-90



Total Gains: 52,000

Total Losses: 18,000

Source: Labour Force Survey, Statistics Canada

Implications

- Importance of developing workers with the knowledge and skills required in the labour market.
- Co-existence of high levels of unemployment and job vacancies will require labour market policies aimed at developing structural solutions. Employers and workers will have to acknowledge the need for human resource planning and development.
- The pace of economic change will put stresses on the labour market and increase the need for adjustment programs. The approach of such programs should be one of assisting workers to become self-sufficient - a trampoline rather than the safety net of the past.

- Increasing importance of critical and economic driver skills - developing workers with the ability to attract strategic, high value-added industries to the Province.
- Increasing skill and knowledge intensity of all jobs will have implications for the number of post-secondary graduates and required upgrading of skills of existing workers.
- Training for the low-skill jobs must be fast, efficient and specific to provide for employment without delay. This must be supplemented by ready access to training and education for the upgrading necessary to qualify for higher level positions.

Physical Environment

Trend

Increased concern for the environment, and widespread questioning whether the current rate of economic growth can be sustained in light of environmental concerns and the province's resources.

Implications

- Sustainable development may mean slower growth and greater competition for budgetary resources needed by the system.
- Science and technology will play an important role in environmental preservation and enhancement, as well as in improving any trade-offs between environmental protection and economic growth.
- Increased requirements for graduates in the environmental sciences; also greater need for enhanced environmental awareness and knowledge across the population.

Social

Trend

A number of groups - women, Natives, persons with disabilities, visible minorities - are under-represented in post-secondary education and the labour market. The needs of these groups should be met, while recognizing there is a reduced ability to pay for all government programs.

Implications

- Need for flexible delivery mechanisms to accommodate the needs of under-represented groups.
- Need to ensure programs and services are targeted to groups in need, focused on barriers to participation and have the support and involvement of the particular group and the community in which they are to be offered.

Government and Societal Values

Trend

During the past 10 years there has been an increased emphasis on the individual and on the need for individuals and organizations to be responsible for their own actions. At the same time, serious questions have been raised regarding the desirability and ability of governments to solve a whole range of social and economic problems.

Implications

- Re-direction of government programs away from providing direct service provision toward facilitating, coordinating and offering information.
- Need to ensure program objectives are clearly articulated and measurable and mechanisms are in place to monitor results and adjust programs accordingly.